

**Synonymic Notes on *Argyroploce illepida* (Butler) and  
*A. carpophaga* (Walsingham)  
(Lepidoptera: Eucosmidae)**

By O. H. SWEZEY and ELWOOD C. ZIMMERMAN

(Presented at the meeting of September 10, 1945)

A. NOTES BY O. H. SWEZEY

This eucosmid moth, known in Hawaii as the koa seed moth on account of the heavy infestation of koa seeds by its larvae, was described by Butler as *Teras illepida*. The description is from a single specimen collected by the Rev. Thomas Blackburn: "In neighborhood of Honolulu; rare.—T.B." In the description the sex is not stated, but it more nearly agrees with the male as we know it at the present time.

Walsingham (Fauna Hawaiiensis, 1 [5]: 681, 1907) placed the species in the genus *Cryptophlebia* which he had erected for *carpophaga*, a species described from India (Indian Museum Notes 4:105, 1899). Apparently the genus is named for a character in the hindwing of the male: "A pouch-like fold along vein 2, containing a thick tuft of scales on the upper side, accompanied by some strongly curved scales on the underside along the margin." This character is common to both *illepida* and *carpophaga*.

Then Meyrick (Records of the Indian Museum, 5: 218, 1910) removed *illepida* to the genus *Argyroploce* and placed *carpophaga* as a synonym of *illepida*, the latter having priority of publication. It would seem that the character on which the genus *Cryptophlebia* was based was sufficient to maintain it as a good genus. This character is not used in the description of the genus *Argyroploce*, a genus of over 500 species. However, in this large genus Meyrick has described a large number from many regions, and among them quite a number have various kinds of secondary characters in the hindwings of the males. It would necessitate many more genera if each of these various characters were used as a basis for separate genera. Hence, no doubt Meyrick is fully warranted in placing *illepida* and *carpophaga* in *Argyroploce*, instead of leaving them in an isolated genus. Fletcher has also adopted this usage (Some South Indian Insects, p. 449, 1914).

When in Guam in 1936, I reared a good series of moths from the seeds of several leguminous trees, which agree with Walsingham's description and figure of *carpophaga*, and I noted differences between these specimens and those reared in Hawaii from seeds of *Acacia koa*, *Acacia farnesiana* and several other leguminous trees,

but not from *Poinciana regia*, *Adenanthera pavonina* and *Pithecolobium dulce* all of which had their seeds badly infested by *carpophaga* in Guam. Hence, I must take exception to Meyrick's synonymy, and consider the two as different species, irrespective of the fact that he states: "Having obtained a series of the Hawaiian from [*illepida*], I find it is identical with Australian, Indian and South African examples [*ombrodelta* and *carpophaga*]."

Some of the differences are as follows: The male of *carpophaga* has much more long woolly hair on dorsum of abdomen; the large tufts on posterior tibia and enlarged basal joint of tarsus are blackish, whereas in *illepida* they are ochreous; the dorsal portion of forewing beneath the fold is infuscated and with a slight admixture of bone-grey scales in *carpophaga*, but not so in *illepida*; in forewing a triangular dark spot near the tornus having its base on dorsum in *carpophaga*, absent in *illepida*; cilia of hindwing white in *illepida*, grey in *carpophaga*. There are 24 males in my Guam series, which I have compared with a series of 40 *illepida* males. The females do not exhibit such striking differences. In both species the forewings vary in the degree of coloration: tawny, ferruginous or brown, but both have the triangular darker spot near the tornus.

So far as known to me, *illepida* does not occur anywhere except in the Hawaiian Islands, and any records in literature of its occurrence elsewhere, no doubt should be considered as belonging to the true *carpophaga*.

#### REFERENCES

- Teras illepida* Butler, Trans. Ent. Soc. London, p. 42, 1882.  
*Artrophora* (?) *ombrodelta* Lower, Proc. Linn. Soc. N. S. Wales, p. 48, 1898.  
*Cryptophlebia carpophaga* Walsingham, Indian Museum Notes, 4: 106, pl. VII, fig. 1, 1900.  
*Cryptophlebia illepida*, Walsingham, Fauna Hawaiiensis, 1 (5): 681, pl. X, 23-25, 1907.  
*Argyroploce illepida*, Meyrick, Records of the Indian Museum, 5: 218, 1910.  
*Argyroploce illepida*, Fletcher, Some South Indian Insects: 449, 1914.

#### B. NOTES BY E. C. ZIMMERMAN

In the foregoing note, Dr. Swezey has outlined his reasons for believing that the moth *Argyroploce illepida* (Butler) of Hawaii is distinct from the widespread *A. carpophaga* (Walsingham). His conclusions are based upon studies of the food habits and external features of the moths. He has asked me to make a study of the genitalia of the species, and I am glad to report that the results of the examination of the male genitalia fully support his conclusions.



Figure 1.—Left: Photograph of a balsam mount of the genitalia of a male *Argyroploce carpophaga* (Walsingham) collected at light at Piti, Guam, July 12, 1936, by O. H. Swezey. Right: Photograph of a balsam mount of the genitalia of a male *Argyroploce illepida* (Butler) collected at Kaimuki, Oahu, T. H., April 17, 1908, by O. H. Swezey.

Herewith are presented reproductions of photographs (kindly made for us by Mr. D. M. Weller, histologist at the H.S.P.A. Experiment Station) which show, without the need of further explanation, how easily the two species may be distinguished on the basis of the male genitalia alone. There is no question that *Argyroploce illepada* is fully distinct from *A. carpophaga*.

An additional problem which we have considered is the status of the two varieties of *Argyroploce illepada* and the two separate species described by Walsingham from Hawaii.

In the series of this common moth (*illepada*) before us, there is a great range of size (12 to nearly 25 mm.), color and color pattern. Slides of the male genitalia of 10 examples from different places, collected free or reared from *Acacia confusa*, *Acacia koa*, *Pithecolobium*, *Dodonaea* and *Sapindus*, and mostly showing differences in color pattern, have been examined. In spite of size and color differences, the structure of the genitalia of all specimens studied is remarkably uniform.

It is of interest to note that Walsingham had 15 examples of his *illepada fulva*, only one of *illepada suffusa*, two damaged *tetrao* and a unique of *vulpes*. If one wished to describe color variations, a number of new ones could be erected from the variable series now available. Perhaps Walsingham would not have proposed so many names if he had been supplied with a more representative series of examples and if he had been more acquainted with the bionomics of the species.

From the evidence now at hand, it appears that there is only one species of *Argyroploce* in Hawaii, and the following synonymy is indicated:

### ***Argyroploce illepada* (Butler)**

*Teras illepada* Butler, Trans. Ent. Soc. London, p. 42, 1882.

*Cryptophlebia illepada illepada* (Butler) Walsingham, Fauna Hawaiiensis, 1 (5) : 681, pl. 10, fig. 23, 1907.

*Cryptophlebia illepada* var. *fulva* Walsingham, loc. cit., pl. 10, fig. 24. New synonym.

*Cryptophlebia illepada* var. *suffusa* Walsingham, op. cit., p. 682, pl. 10, fig. 25. New synonym.

*Cryptophlebia tetrao* Walsingham, op. cit., p. 683, pl. 10, fig. 26. New synonym.

*Cryptophlebia vulpes* Walsingham, loc. cit., pl. 10, fig. 27. New synonym.

*Argyroploce illepada* (Walsingham) Meyrick, Records Indian Museum, 5 : 218, 1910.